species, the converse was not true. There are numerous other sites with apparently identical habitat conditions where cedar has not been found. It may very likely occur in other places not yet examined. Certainly it is not possible to state that *Chamaecyparis* does *not* occur in a township without a very detailed survey.

This brief survey of *Chamaecyparis* at its known northwestern limit in New Hampshire serves to indicate the precarious status of plants that cannot maintain themselves when the environment is altered. Reproduction is scanty, growth is slow and is inadequate to restore stocking when cutting and flooding destroy the seed bearing trees. Unless some areas are placed under protection it will be only a matter of time before all *Chamaecyparis* disappears from this region, as it apparently already has from Bagley's Pond.
— FOX RESEARCH FOREST, HILLSBORO, NEW HAMPSHIRE.

WHICH SIDE IS UP?
A LOOK AT THE LEAVES OF ORYZOPSIS

EDWARD G. VOSS

It was no less noted a critic than M. L. Fernald who asserted: "errors once born never die but, on the contrary, by others not situated to know the facts are continually mistaken for the truth and consequently perpetuated." (Rhodora 44: 246. 1942.) After examination of a long series of Michigan specimens of a grass common in dryish woods throughout the state, *Oryzopsis asperifolia* Michx., I was not a little surprised to read in Fernald's 8th edition of Gray's Manual (1950) that the leaves of this species have a "*glaucous lower surface*" (italics are the original emphasis).

Professor Fernald is in good, if not accurate, company. The first edition of Gray's Manual (1848) described the leaves as "pale underneath," and they have been similarly described in all subsequent editions. Torrey's great Flora of New York (1843) — a source in which I often find accurate bits of description omitted by other authors — considers the leaves "glaucous underneath." The official verdict

of the Manual of Grasses (1935 & 1951 editions) is "glaucous beneath." Gleason's New Illustrated Flora (1952) says "pale . . . beneath." Harrington (Man. Pl. Colo., 1954) uses the phrase "rather glaucous below."

The embarrassing fact is that it is the *upper* (adaxial) surface of the leaf blades (a conspicuous 4-10 mm wide) which is glaucous. The truth is readily determined by following a blade as it extends from the sheath. In his original description, Michaux said nothing about glaucousness, and I do not know who started the error; possibly it was Torrey. Many authors, whether intentionally or not, have kept their records clean by declining to report on this point: Pursh, Bigelow, Eaton, Wood, Britton & Brown, etc.

The typically careful Deam (Grasses Ind., 1929) does not mention glaucousness, but does describe the blades as involute at the base, thus revealing his correct observation of the orientation of the leaf. (Descriptions of the margins as "revolute" show the same lack of understanding of which side is up.) Jennings (Wild Fl. West. Pa. & Upper Ohio Basin, 1953) merely describes the leaves as "glaucous," not committing himself as to surface. In a cursory examination of literature, I have found no one who actually describes the upper surface as glaucous.

Species possessing leaves with revolute margins and a glaucous under surface are not unusual. Involute margins and a glaucous upper surface would ordinarily, to be sure, be unexpected, although the leaves of *Oryzopsis pungens* (Spreng.) Hitchc. are almost universally described as very narrow and involute and one might therefore expect that in *O. asperifolia* they are simply wide and involute. Assuming that some, if not all, authors have based their mention of a glaucous surface on an examination of plants and not on second-hand information, apparently the examination was not extended to checking just which side of the leaf was being observed. This is one case in which herbarium specimens are more easily interpreted than plants growing in the field. For in the latter, the leaves (essentially basal) spread out loosely over the ground, with the glaucous upper surface

usually appearing falsely to be the lower one, as the tough evergreen blades turn on their very narrow, involute, nearly terete, and evidently weak bases. However, one may easily trace the adaxial surface with the naked eye from the inside of the sheath, past the tiny ligule, through the groove in the slender base of the blade, to the broad glaucous surface with usually involute margins.

The leaves of *Oryzopsis racemosa* (Sm.) Hitchc., being cauline rather than basal, and even more conspicuous, have fared a little better in manuals and the score is nearly even. The Manual of Grasses says "pubescent beneath," and Gleason uses the identical phrase. Torrey (under the synonym *O. melanocarpa*) again disappoints us, with "pubescent underneath." Deam, however, says "pubescent above," as does Fernald in the 8th edition of Gray's Manual, and as did the 7th edition (earlier ones omitting the point). Jones (Fl. Ill., 1950) says "the upper surface pubescent." On all specimens which I have examined, the leaf blades are characteristically short-pilose *above*, although there is sometimes a little pilosity below in addition.

If a moral is to be drawn from these simple observations, it is that those who write local floras have no basis for an accurate product other than painstaking examination of "nature, not books." — HERBARIUM, UNIVERSITY OF MICHIGAN, ANN ARBOR.

A CHECK LIST OF WALTER DEANE'S SEEDLING COLLECTION

RICHARD J. EATON

The extensive and beautifully prepared herbarium of Walter Deane came to the New England Botanical Club by bequest in 1931. It included a bundle which he had designated as his "Seedling Collection" made in 1895 or thereabouts. It consists of meticulously prepared and well-mounted specimens representing fifty-two species in forty-three genera. For each species there are from one to five or more sheets with the specimens arranged in sequence according to age